REMARKS

The present amendment is prepared in accordance with the requirements of 37 C.F.R. § 1.121. A complete listing of all the claims in the application is shown above showing the status of each claim. For current amendments, inserted material is underlined and deleted material has a line there-through.

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Claims 1, 9, 11, 14, 20, 24, 42 and 43 have been amended.

Claims 8, 13, 15, 21, 23 and 41 have been canceled.

Claims 44-47 have been added.

No new matter has been added.

Claim Objections

The Examiner has objected to claim 14 due to informalities. It is submitted that claim 14 has been amended to overcome these informalities, and as such, the objection thereof is now moot.

No new matter has been added.

Claim Rejections - 35 USC § 112

The Examiner has rejected claims 8, 13, 15, 21, 23, 24 and 41-43 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states that the above claims are vague and indefinite since the precipitation process is unclear to the Examiner. Applicants have amended the

pending independent claims to clarify that the microbiological interception enhancing agent is a biologically active metal precipitated with a counter ion of a cationic material, whereby the cationic material resides on at least a portion of at least some of the fibers and/or active agents. The biologically active metal precipitates with the counter ion of the cationic material to form a colloidal metal precipitate on a surface of the portion of the fibers and/or active agents. Since the cationic material resides on the fibers and/or active agents, the invention enables controlled and direct precipitation of a colloidal metal precipitate in direct proximity to the cationic material.

Applicant submits that the amended claims overcome the rejections under 35 U.S.C. 112, second paragraph.

No new matter has been added.

Claim Rejections - 35 USC § 103

The Examiner has rejected claims 1-7, 9-12, 14, 16-20 and 22 under 35 USC §103(a) as anticipated by Giglia et al. (U.S. Patent No. 4,929,502). The Examiner has also rejected claims 8, 15, 21, 23-24 and 41-43 under 35 U.S.C. 103(a) as being unpatentable over Giglia et al., cited above, in view of Sawan et al., (US Patent No. 5,681,468) or Sawan et al., (US Patent No. 5,817,325).

Applicant disagrees with the above rejections.

It is submitted that the pending independent claims of the foregoing application, to wit, claims 1, 9, 11, 14 and 20, are all directed to integrated paper comprising at least a plurality of fibers, preferably fibrillated fibers (claims 1, 9, 11), more preferably fibrillated lyocell fibers (claim 14), and a microbiological

interception enhancing agent on at least a portion of at least some of the fibers. The microbiological interception enhancing agent comprises a biologically active metal precipitated with a counter ion of a cationic material that is residing on the portion of the fibers to form a colloidal metal precipitate on a surface of such portion of the fibers. The fibers are fibrillated at a temperature greater than about 30°C and have an average fiber diameter of less than about 1000 nm (claim 1), and more preferably have an average fiber diameter of less than about 400 nm (claims 9, 11, 14). The integrated paper may further include active agents (claims 1 and 14), whereby the microbiological interception enhancing agent is on at least a portion of at least some of the fibers and/or active agents. The integrated paper preferably has a mean pore size of less than or equal to about 2 microns (claims 1, 20). The integrated paper may also include silver oxide particles admixed with the fibers (claim 9), one or more acid neutralizing agents admixed with the fibers (claim 11), or a lead reducing agent admixed with the fibers (claim 20).

It is respectfully submitted that Giglia does not teach or suggest a microbial interception enhancing agent on selected fibers. The Examiner has recognized this deficiency of Giglia; however, cites the above Sawan patents to overcome such deficiency.

Applicant submits that neither Sawan patent, alone or in combination overcomes the deficiency of Giglia since neither Sawan patent teaches a microbiological interception enhancing agent *on at least a portion of at least some of the fibers and/or active agents* of the integrated paper. Nor do these patents even

contemplate or suggest that a microbiological interception enhancing agent can reside on portions of some of the fibers and/or active agents of the integrated paper.

It is respectfully submitted that Sawan (U.S. Patent No. 5,681,468 hereinafter "Sawan '468") discloses a liquid dispenser that has a filter, e.g., an organic or inorganic filter, which has been coated on at least one surface, and also at least partially coated within a plurality of its pores, with a metallic material, e.g., a metal or metal oxide or metal salt, that is bacteriostatic or bacteriocidal. (Abstract and col. 2, ll. 11-15 and 54-67.) In order to achieve this coating, Sawan '468 requires pretreatment of the filter with either a carbonyl compound (*see*, col. 4, ll. 7-17 and col. 9, ll. 10-42) or an activator (*see*, col. 4, ll. 18-24 and col. 10, ll. 15-27.)

The filter of Sawan '468 is coated with a carbonyl compound (e.g., an aldehyde such as glutaraldehyde, a sugar such as glucose, or an aldehyde functionality generating compound) or with an activator (e.g., tin, titanium, vanadium, chromium, manganese, iron, etc.), followed by contact with a metal salt and an amine-containing compound solution. (Col. 4, ll. 7-24, col. 9, ll. 10-16 and col. 10, ll. 15-27 and Example 12 at col. 15, ll. 13-34.) That is, the metal salt and the amine-containing compound are in the same solution, and the carbonyl-coated filter is contacted with this solution. Examples 6A and 6B of Sawan '468 teach that concentrated ammonium hydroxide (i.e., an amine-containing compound (col. 10, ll. 9-14)) is added to a silver nitrate/sodium hydroxide solution to form a soluble metal amine complex in solution. (Col. 12, l. 58 – col. 12, l. 15.) This solution is used to treat the membranes of examples 2-5 and 10. (*See*, col. 11, l. 40 to col. 14,

l 60.) According to Sawan '468, the carbonyl compound reduces the metal ion to metal so as to deposit the metal on the filter surface and within pores of the filter. (Col. 9, ll. 10-52.) Sawan '468 further discloses that its metal coating preferably has a uniform metal coating thickness on the surface and within the pores of the filter. (Col. 9, ll. 44-52.)

An essential distinction between Sawan '468 and the present invention is that in Sawan '468 whether its filter is partially coated on a downstream surface, within a plurality of pores, and/or at least partially coated on an upstream surface (col. 6, ll. 42-57), the metal coating of Sawan '468 has a uniform thickness on the surface and within the pores of the filter. (Col. 9, ll. 44-52, and *See*, Examples 2-5 and 10.)

Applicant submits that Sawan '468 does not disclose, contemplate or suggest an integrated paper of a plurality of fibers and a microbiological interception enhancing agent on at least a portion of at least some of such fibers, whereby the microbiological interception enhancing agent comprises a biologically active metal precipitated with a counter ion of a cationic material that is residing on such portion of the selected fibers to form a colloidal metal precipitate on a surface thereof. In accordance with the invention, the precipitation of the biologically active metal with the counter ion of the cationic material enables controlled precipitation and formation of the colloidal metal precipitate. In so doing, since the cationic material is on some of the fibers of the paper, the colloidal metal precipitate is integrated directly in the paper itself, i.e., it is not merely a coating on the paper.

On the contrary, it is applicant's position that the structure of Sawan '468 is merely a surface coating having a uniform thickness (see, Col. 6, ll. 42-57, Col. 9, ll. 44-52, and *See*, Examples 2-5 and 10). Further, applicants submits that Sawan '468 teaches against the present invention as it would have uncontrolled deposition of the metal across the structure disclosed therein since the structure is first pretreated with a carbonyl compound or an activator, and then immersed in a solution that contains the metal salt and the amine-containing compound. Nowhere in Sawan is it disclosed or contemplated that the structures therein be made of a plurality of fibers, whereby a microbiological interception enhancing agent resides on at least a portion of at least some of these fibers, as is currently claimed.

Similarly, it is submitted that Sawan et al., (US Patent No. 5,817,325 hereinafter "Sawan '325") also does not overcome the deficiencies of Giglia, either alone or in combination with Sawan '468. The Sawan '325 patent is directed to an article of manufacture or device having disposed on a surface thereof a contact-killing, non-leaching antimicrobial coating which kills microorganisms upon contact. (Abstract, claim 1.) Sawan '325 does not disclose, contemplate or suggest integrated paper of a plurality of fibers and a microbiological interception enhancing agent on at least a portion of at least some of the fibers, whereby the microbiological interception enhancing agent comprises a biologically active metal precipitated with a counter ion of a cationic material that is residing on the portion of the fibers to form a colloidal metal precipitate on a surface of such portion of the fibers.

Sawan '325 discloses an antimicrobial material of an organic material which forms a matrix and a biocidal material intercalated in the matrix to form a contact-killing coating on a substrate or to make freestanding antimicrobial films (not attached to a substrate). (Col. 4, ll. 9-32.) The compositions of Sawan '325 are applied to various substrates to form antimicrobial coatings or layers on the substrates, whereby the solution, dispersion or suspension of Sawan '325 is applied to a substrate to form the matrix. (Col. 4, ll. 33-41 and col. 8, ll. 41-43.) The solution, dispersion or suspension is applied to the substrate by any suitable means for applying a liquid coating, and then dried to form the matrix. (Col. 4, ll. 56-67.) The matrix is then contacted with the biocidal material to deposit the biocidal material into the matrix. (Col. 5, ll. 3-7 and col. 9, ll. 44-46.) Alternatively, the organic material and the biocidal material may be combined in solution and then applied to the substrate to form the matrix. (Col. 5, ll. 8-20 and col. 9, ll. 44-46.) As another embodiment, a freestanding antimicrobial film may be formed using the antimicrobial material of Sawan '325. (Col. 5, ll. 37-59 and col. 8, ll. 41-43.)

That is, Sawan '325 is limited to coatings or layers using the coating formulations disclosed therein on a wide range of materials, whereby the coating or layer is applied directly to the surfaces. (Col. 11, ll. 14-19.) This is exemplified in the examples of Sawan '325 (*See*, Col. 14, l. 4 to col. 18, ll. 67.) Sawan '325 does not disclose, contemplate or suggest an integrated paper made of a plurality of fibers whereby at least a portion of at least some of these fibers have been treated with a microbiological interception enhancing agent, as in applicant's invention. In so doing, in accordance with applicant's invention, the microbiological

interception enhancing agent is integrated into the paper —not just residing as a surface coating/layer on a substrate surface as is disclosed in Sawan '325.

In view of the foregoing, applicant submits that the structures of the present invention are different from that of the cited references, such that, the cited references, either alone or in any proper combination thereof do not anticipate nor render obvious the present invention.

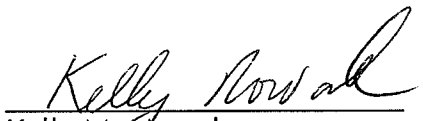
Applicant submits that it is only applicant's disclosure that teaches a microbiological interception enhancing agent residing on a portion of selected fibers and/or active agents, which of course, is improper as a hindsight reconstruction of applicant's invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983) (Hindsight based on reading of the patent in issue may not be used to aid in determining obviousness). None of the cited references suggest doing what Applicant has done. In re Skoll (CCPA 1975) 187 USPQ 481. (The cited references, and not in retrospect, must suggest doing what Applicant has done.) Likewise, hindsight and the level of ordinary skill in the art may not be used to supply a component missing from the prior art references. Al-Site Corp. v. VSI International, Inc., 174 F.3d 1308, 1324, 50 USPQ2d 1161, 1171 (Fed. Cir. 1999).

For the reasons as discussed above, applicant submits that the present invention is not obviousness over the cited references of Giglia in view of Sawan et al. (US Patent No. 5,681,468) or Sawan et al. (US Patent No. 5,817,325) since none of these references, alone or in combination, disclose, contemplate or suggest a microbiological interception enhancing agent residing on a portion of selected

fibers and/or active agents as is currently claimed. It is only applicant's disclosure that teaches a microbiological interception enhancing agent on a portion of selected selected fibers and/or active agents, which of course, is improper as a hindsight reconstruction of applicant's invention.

It is respectfully submitted that the application has now been brought into a condition where allowance of the case is proper. Reconsideration and issuance of a Notice of Allowance are respectfully solicited. Should the Examiner not find the claims to be allowable, Applicants' attorney respectfully requests that the Examiner call the undersigned to clarify any issue and/or to place the case in condition for allowance.

Respectfully submitted,



Kelly M. Nowak
Reg. No. 47,898

DeLIO & PETERSON, LLC
121 Whitney Avenue
New Haven, CT 06510-1241
(203) 787-0595
kxin100027000amdD_08-01-07.doc